Children and Youth Services Review 32 (2010) 1690–1703

Contents lists available at ScienceDirect

Children and Youth Services Review

journal homepage: www.elsevier.com/locate/childyouth

Do early academic achievement and behavior problems predict long-term effects among Head Start children?

Kyunghee Lee *

School of Social Work, Michigan State University, East Lansing, MI 48824-1118, United States

ARTICLE INFO

Article history:
Received 8 March 2010
Received in revised form 7 July 2010
Accepted 22 July 2010
Available online 30 July 2010

Keywords:
Head Start
Long-term outcomes
Maternal education
Moderation effects

ABSTRACT

This study examines the effects of Head Start children's early achievement and behavioral scores on their long-term developmental outcomes. Using National Longitudinal Survey of Youth (NLSY) data, a sample of 603 children was selected who had participated in Head Start from 1988 to 1994 and had longitudinal outcomes measured. Head Start children's reading, math, and behavioral scores, as measured at ages 5–6, were examined to determine whether these early scores affected outcomes measured at ages 11–12. Not surprisingly, there was a strong relationship between children's early and later educational and behavioral scores. Maternal education moderated these associations for reading and on behavioral outcomes. Associations between short-term and longer-term achievement and behavioral outcomes were less significant for children whose mothers had less education than for children whose mothers had more education. As expected, children's reading, math, and behavioral outcomes at ages 5–6 were inter-correlated, as were those measured at ages 11–12.

1. Introduction

The Head Start program was established in 1965 to provide a comprehensive educational program for children living in poverty. The goal of Head Start is to improve comprehensive child outcomes for low-income children so they can begin school in equal standing with others from higher-income households. Children who participate in Head Start show more positive cognitive, socio-emotional, health, and nutritional outcomes than their non-Head Start counterparts (Love et al., 2005; Puma et al., 2010, 2006; Raikes et al., 2006; West et al., 2007). Despite the overall consensus that there are proximal Head Start program benefits, it has been debated whether or not these effects still exist after children exit the Head Start program. The purpose of the current study is to examine the persistence of Head Start's impact on children's learning. This study uses a longitudinal data set measuring comprehensive children's outcomes. The study also examines whether maternal education moderates the effects of Head Start over time.

1.1. Reviews of pre-existing evaluations on Head Start Programs

Since its inception, Head Start has experienced changes in program assessments. Early evaluations of Head Start focused on whether the program could improve Intelligence Quotient (IQ) scores. Although some positive impacts were found (Datta., 1976), Head Start was not supported strongly, due to the lack of a significant program impact on children's IQ scores (Cicirelli, 1969; Westinghouse Learning Corporation, 1969). Subsequent evaluations of Head Start began to focus on non-cognitive domains. The Consortium of Longitudinal Studies (1978, 1983) found that children who attended high quality preschools were less likely to be placed in special education, or to repeat grade levels. Program benefits included motivation and test-taking behaviors (Zigler & Trickett, 1978). Benefits also included the Head Start program's impact on families and communities (Bronfenbrenner, 1979; Hunt, 1961). The Head Start Synthesis Project reviewed about 200 studies (McKey et al., 1985) on Head Start children's various outcomes such as health, nutrition, and socio-emotional traits.

The effects of Head Start on developmental outcomes have been examined in small scale experimental settings, comparing participants and non-participants of Head Start (Zigler & Styfco, 2004). Children who participated in Head Start generally showed higher language and literacy skills (Bryant, Burchinal, Lau, & Sparling, 1994; Dickinson & Smith, 1994; Snow & Paez, 2004), better health outcomes (O'Brien, Connell, & Griffin, 2004), and improved cognitive and social skills (Lee, Brooks-Gunn, Schnur, & Liaw, 1990) than those who did not participate in the program. Head Start parents reported more self-confidence and more positive attitudes toward their children (Boger, Kuipers, & Beery, n.d; Peters, 1998; Pizzo & Tufankjian, 2004). These Head Start parents also reported more verbal communication with their children and demonstrated more participation in school activities (Marcon, 1999; Miller & Bizzell, 1984).

* Tel.: +1 517 353 8616; fax: +1 517 353 3038.
E-mail address: choiky@msu.edu.

0190-7409/$ – see front matter © 2010 Elsevier Ltd. All rights reserved.
doi:10.1016/j.childyouth.2010.07.012

Recently, several national evaluations have studied the impact of Head Start. The Head Start Impact Study (Puma et al., 2006, 2010), the National Early Head Start Research and Evaluation Study (Love et al., 2005; Raikes et al., 2006) and the Head Start Family and Child Experience Survey (Tarullo et al., 2008; West et al., 2007), all used large samples. Head Start program impacts were significant for children and for mothers enrolled in the program. In particular, the Head Start Impact Study (Puma et al., 2010) found that children who enrolled in Head Start made progress on cognitive measures, particularly in pre-literacy skills, compared to the control group of children. Kindergarten and first grade follow-up assessments, however, found that Head Start children's gains in these areas faded out, with the exception of small vocabulary gains. These findings were based on nationally conducted studies which support Head Start's immediate impact on developmental outcomes for children and their families. However, less is known about whether these gains from Head Start remain a few years after children leave the Head Start program.

1.2. Debates on the long-term impact of Head Start

Long-term effects have not been documented as extensively as the short-term effects of Head Start. Early studies suggested that Head Start had minimal influence on later school achievement, and that its short-term benefits would eventually fade (Cicirelli, 1969; Consortium of Longitudinal Studies, 1978; 1983; McKey et al., 1985; Westing House Learning Corporation, 1969). The absence of significant long-term effects for Head Start in early evaluation research has been interpreted in a variety of ways. Some suggest that benefits of Head Start may fade due to environmental factors in a child's home and family (Bronfenbrenner, 1974; 1979). The lack of long-term effects of Head Start has also been attributed to inadequate funding and low program quality (Currie & Neidell, 2007; Currie & Thomas, 2000; Lee et al., 1990), to the disadvantaged characteristics of Head Start children, and to the lack of continued support for disadvantaged children later in childhood (Bickel & Spatig, 1999; Lee & Loeb, 1995; Sigel, 2004).

More recent studies of Head Start, however, have found significant long-term effects. Lee et al. (1990) used the Educational Testing Service Head Start Longitudinal Study (HSLS) data. They found that Head Start children maintained more educationally substantive gains at grade 1 than those who had not attended preschool programs. Garces, Thomas, and Currie (2002), using the Panel Study of Income Dynamics data (PSID), found that compared to their siblings who had not attended Head Start, white Head Start children who had been in Head Start were more likely to complete high school and attend college. Among Black Head Start graduates, compared to siblings who had not attended Head Start, those who had enrolled in Head Start were less likely to be charged with a crime by their 20s. Joo (2010) also used PSID data and found long-term Head Start impacts on girls who had lived in the persistent poverty. Currie and Thomas (1995) used National Educational Longitudinal Study (NELS) data and found that, although Head Start is associated with large and significant gains in test scores for both white and black children, these gains were quickly lost among black children. Later, Currie and Thomas (1999) used the National Longitudinal Survey of Youth (NLSY) data. They found improved academic performance at age 11 for Hispanic children who had participated in Head Start, compared to their siblings who had not participated in the program.

Long-term program effects have also been examined in other early childhood programs that usually provide quality early intervention from 0 to 5 years. For example, the Carolina Abecedarian project (Campbell & Ramey 1994; 1995; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; McLaughlin, Campbell, Pungello, & Skinner, 2007; Ramey, Dorval, & Baker-Ward 1983), High/Scope Perry Preschool project (Schweinhart, Barnes, & Weikart 1993), and Early Training Project (Gray & Klaus 1970) show the program participants' lesser special education placement and grade retention at age 12, 14, and 17, respectively, than those who did not enroll in early childhood programs. Low birth weight infants who participated in the Infant Health and Development Program from birth to age 3 years showed more cognitive and behavioral gains at age 8 (Hill, Brooks-Gunn, & Waldfogel, 2003; McCarton et al. 1997), and 18 (McCormick et al. 2006) than those in the control group. Enrollment in the Chicago Child–Parent program at age 3 was associated with lower rates of special education placement, grade retention, juvenile arrest, and high school drop-out rates by age 21 (Reynolds 2000, 2004; Reynolds et al. 2001*a, b*; Reynolds, Mavrogenes, Bezruczko, & Hagemann 1996). Children who had obtained higher cognitive and non-cognitive skills from the Chicago Child–Parents program in early school years tended to have higher educational attainment and lower incarceration rate at age 24 (Reynolds, Temple, & Ou, 2010).

Similar to the Head Start program, the evidence on long-term effects of preschool has been inconclusive (Barnett & Boocock, 1998; Epstein, Schweinhart, & McAdoo 1996; Gross, Spiker, & Haynes, 1997; Karoly et al., 1998; Reynolds, 2000). The differences in IQ scores or achievement test scores between participants and non-participants were smaller than differences in other outcomes such as special education placement, grade retention, or crime rates (Barnett & Boocock, 1998, Table 1). Positive long-term effects were more significant in studies of smaller scale model early intervention programs than in larger public early childhood programs. According to them, this may be due to the fact that smaller model programs provide better quality, perhaps due to better funding. For example, the weighted average program cost for the Perry Preschool program (some attended only 1 year of the two-year program) was about $12,000 per participant for 2 years (Karoly et al. 1998). The average cost per child for the Chicago Child–Parent Center was $6730 (1998 dollars) for 1.5 years of participation (Reynolds et al., 2001*b*). The IHDP (Infant Health Development Program) spent more than $10,000 per family/year in 1995 dollars (Karoly et al. 1998).

The long-term effects of child care are also mixed. Children who were in center-based child care before 3 years of age had better cognitive (Broberg, Wessels, Lamb, & Hwang, 1997; Vandell, & Corasaniti, 1990) and socio-emotional outcomes at age 8 (Vandell, & Corasaniti, 1990; Vandell, Henderson, & Wilson, 1988) than those who were in home-based care. Peisner-Geinbert and others (2001) found that child care quality in preschool years has a long-term positive effect on children's cognitive and socio-emotional development through second grade. Several other studies using the National Institute of Child Health and Human Development data indicated that children who received early quality care tended to exhibit better cognitive outcomes through third grade (NICHD, 2005*a*) and show better attention, memory, and planning in the first grade (NICHD, 2005*b*) than those who did not receive quality child care. Further, among small scale intervention programs, more positive long-term effects of high quality care were reported for children from less advantaged backgrounds (Campbell et al., 2001; Hagekull & Bohlin, 1995; Lazar & Darlington, 1982; NICHD, 1997; Schweinhart, Weikart, & Larner, 1986).

On the contrary, others have contended that child care had negative or no long-term impacts on children's developmental outcomes. More time spent in child care centers before kindergarten increased aggression and disobedience at later ages (Belsky et al., 2007) and decreased cortisol levels in adolescence (Roisman et al., 2009) compared to those who were cared in the child care centers with less quantity. Day-care children were rated higher on externalizing behavior in kindergarten than home-reared children, but no differences were found in the later school years (Egeland & Hiester, 1995). The negative effects of a large amount of nonparental care on children's behavior became weaker as children grow older (Colwell et al., 2001). No significant association was found between several child care characteristics (group size, staff–child ratio, training) and a